

RECEIVED  
CENTRAL FAX CENTER

JUL 06 2007

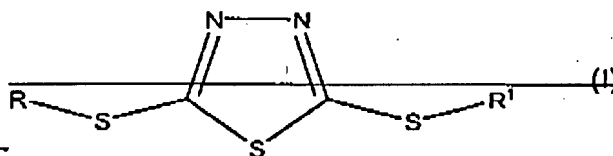
Application No. 10/678,408

**AMENDMENTS TO THE CLAIMS:**

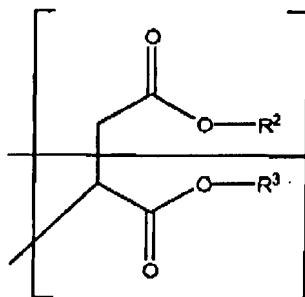
This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Currently Amended) A lubricating composition comprising:
- (a) a major portion of an oil of lubricating viscosity; and
  - (b) about 0.1 to 10 percent by mass of an antiwear additive comprising:
    - (1) an organo borate ester composition formed by reacting about 1 mole fatty oil and about 1.8 moles diethanolamine followed by subsequent reaction with boric acid, wherein the boron content of the organo borate ester composition is between 0.8 and 1.2 wt. % and, wherein the amount of organo borate ester in the lubricating composition is less than about 1.0 percent by mass; and
    - (2) one or more components selected from the group consisting of:
      - (i) a 1,3,4-thiadiazole compounds of the formula (I):



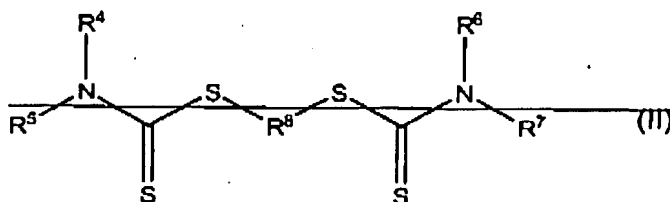
wherein R and R' are independently selected from hydrogen and C<sub>8-12</sub> thioalkyl or hydrogen, C<sub>1-22</sub> alkyl groups, terpene residue and maleic acid residue of the formula:



Application No. 10/678,408

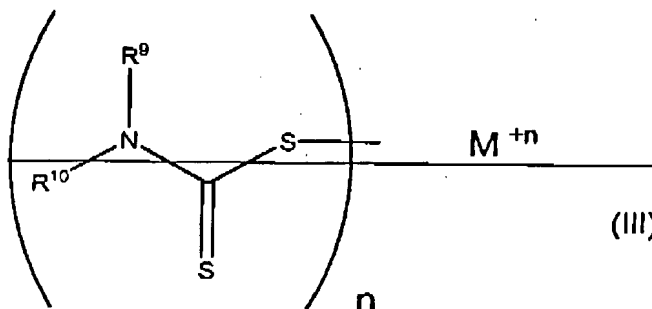
and R<sup>2</sup> and R<sup>3</sup> represent C<sub>1-22</sub>-alkyl and C<sub>5-7</sub>-cycloalkyl groups, R or R<sup>1</sup> and either R<sup>2</sup> or R<sup>3</sup> may be hydrogen, compound comprising butanedioic acid ((4,5-dihydro-5-thioxo-1,3,4-thiadiazol-2-yl)thio-bis(2-ethyl hexyl) ester, wherein the ratio of organo borate ester to the 1, 3, 4 - thiadiazole compound is 1:3 to 15:1

(ii) ~~a bisdithiocarbamate compounds of the formula (II):~~



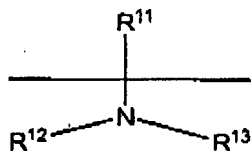
wherein R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, and R<sup>7</sup> are aliphatic hydrocarbyl groups having 1 to 13 carbon atoms and R<sup>8</sup> is an alkylene group having 1 to 8 carbon atoms, compound comprising methylene bis  
(dibutyl)dithiocarbamate, wherein the ratio of organo borate ester: bisdithiocarbamate is 1:6 to 15:1;

(iii) ~~dithiocarbamates of the formula (III):~~



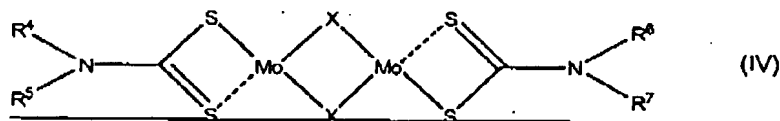
wherein R<sup>9</sup> and R<sup>10</sup> represent alkyl groups having 1 to 8 carbon atoms, M represents metals of the periodic groups IIA, IIIA, VA, VIA, IB, IIB, VIB, VIII and a salt moiety formed from an amine of the formula:

Application No. 10/678,408



$R^{11}$ ,  $R^{12}$  and  $R^{13}$  being independently selected from hydrogen and aliphatic groups having 1 to 18 carbon atoms and n is the valence of M;

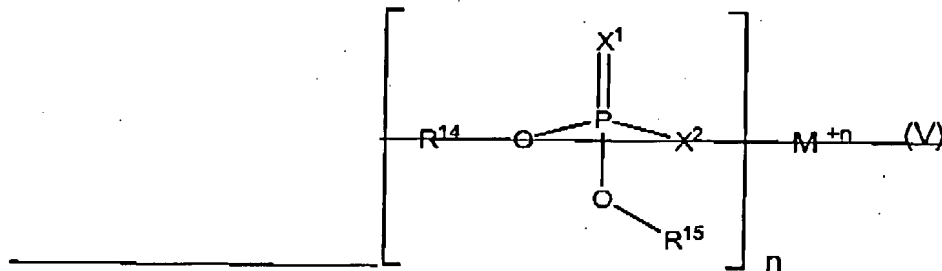
~~or the formula (IV):~~



**X = S or O**

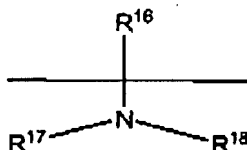
where R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, and R<sup>7</sup> are aliphatic hydrocarbyl groups having 1 to 13 carbon atoms and R<sup>8</sup> is an alkylene group having 1 to 8 carbon atoms; compound comprising molybdenum dialkyldithiocarbamate or zinc dialkyldithiocarbamate, wherein the ratio of organo borate ester: dithiocarbamate is 1:15 to 15:1

(iv) ~~phosphorodithioates of the formula (V):~~



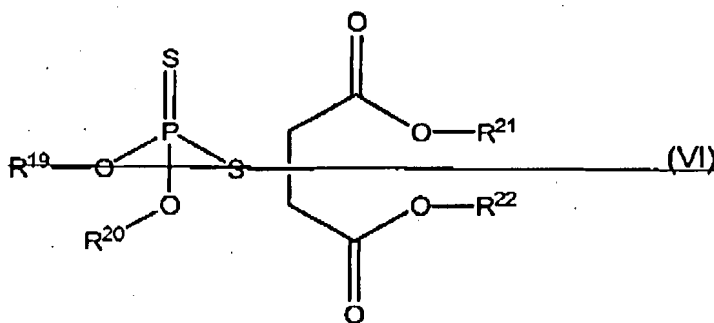
wherein  $X^1$  and  $X^2$  are independently selected from S and O,  $R^{14}$  and  $R^{15}$  represent hydrogen and alkyl groups having 1 to 22 carbon atoms, M represents metals of the periodic groups IIA, IIIA, VA, VIA, IB, IIB, VIB, VIII and a salt moiety formed from an amine of the formula:

Application No. 10/678,408



$R^{16}$ ,  $R^{17}$  and  $R^{18}$  being independently selected from hydrogen and aliphatic groups having 1 to 18 carbon atoms and  $n$  is the valence of  $M$ , a phosphorodithioate compound comprising primary alkyl zincdithiophosphate, wherein the ratio of organo borate ester: phosphorodithioate is 1:15 to 15:1; and

(v) phosphorodithioate esters of the formula (VI):



wherein  $R^{19}$ ,  $R^{20}$ ,  $R^{21}$ , and  $R^{22}$  may be the same or different and are selected from alkyl groups having 1 to 8 carbon atoms; compound comprising dialkyl dithiophosphate, wherein the ratio of organo borate ester: phosphorodithioate ester is 1:15 to 15:1; and

(vi) a non-sulfur molybdenum additive prepared by reacting (a) about 1.0 mole of fatty oil having 12 or more carbon atoms, (b) about 1.0 to 2.5 moles diethanolamine and (c) a molybdenum source, wherein the ratio of organo borate ester: non sulfur molybdenum additive is 1:15 to 15:1.

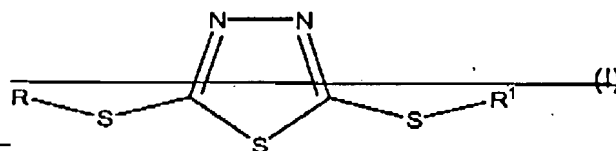
2. (Cancelled)
3. (Cancelled)

Application No. 10/678,408

4. (Cancelled)
5. (Cancelled)
6. (Currently Amended) The composition of claim 1 ~~3~~, wherein component (2) comprises (iii) the dithiocarbamates.
7. (Previously Presented) The composition of claim 1, wherein the ratio of component (1) to component (2) is about 2:1 to 1:1.
8. (Currently Amended) The composition of claim 1 ~~2~~, wherein component (2) comprises (ii) the bisdithiocarbamates.
9. (Original) The composition of claim 8, wherein the ratio is about 1:4 to 9:1.
10. (Original) The composition of claim 3, wherein component (2) comprises (iv) the phosphorodithioates.
11. (Original) The composition of claim 3, wherein component (2) comprises (v) phosphorodithioate esters.
12. (Original) The composition of claim 3, wherein component (2) comprises the non-sulfur molybdenum additive of (vi).
13. (Original) The composition of claim 12, wherein the ratio is about 1:1 to 3:1.

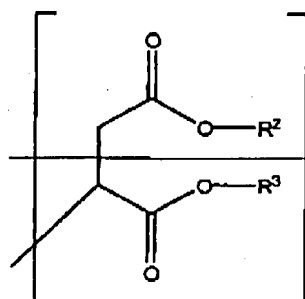
Application No. 10/678,408

14. (Original) The composition of claim 3, wherein component (2) comprises (i) the thiadiazoles.
15. (Original) The composition of claim 14, wherein the ratio is about 3:7 to 9:1.
16. (Cancelled)
17. (Cancelled)
18. (Currently Amended) A method for providing increased antiwear protection to an engine, said method comprising the step of using a lubricating composition comprising
  - (a) a major portion of an oil of lubricating viscosity; and
  - (b) about 0.1 to 10 percent by mass of an antiwear additive comprising:
    - (1) an organo borate ester composition formed by reacting about 1 mole fatty oil and about 1.8 moles diethanolamine followed by subsequent reaction with boric acid, wherein the boron content of the organo borate ester composition is between 0.8 and 1.2 wt. % and, wherein the amount of organo borate ester in the lubricating composition is less than about 1.0 percent by mass; and
    - (2) one or more components selected from the group consisting of:
      - (i) a 1,3,4-thiadiazole compounds of the formula (I):



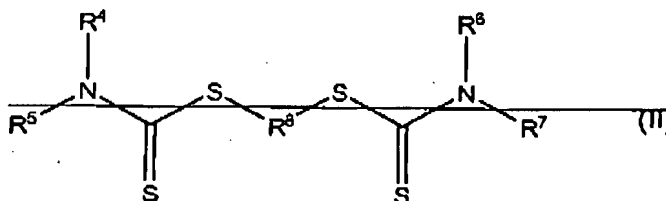
wherein R and R' are independently selected from hydrogen and C<sub>1-12</sub> thioalkyl or hydrogen, C<sub>1-22</sub> alkyl groups, terpene residue and maleic acid residue of the formula:

Application No. 10/678,408



and  $R^2$  and  $R^3$  represent  $C_{1-22}$ -alkyl and  $C_{3-7}$ -cycloalkyl groups,  $R$  or  $R^1$  and either  $R^2$  or  $R^3$  may be hydrogen, compound comprising butanedioic acid ((4,5-dihydro-5-thioxo-1,3,4-thiadiazol-2-yl)thio-bis(2-ethyl hexyl) ester, wherein the ratio of organo borate ester to the 1, 3, 4 - thiadiazole compound is 1:3 to 15:1

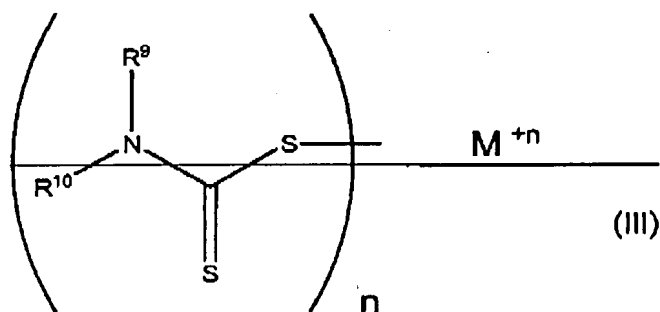
(ii) a bisdithiocarbamate compounds of the formula (II):



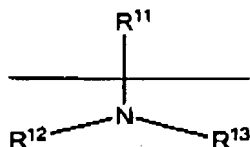
wherein  $R^4$ ,  $R^5$ ,  $R^6$ , and  $R^7$  are aliphatic hydrocarbonyl groups having 1 to 13 carbon atoms and  $R^8$  is an alkylene group having 1 to 8 carbon atoms, compound comprising methylene bis (dibutyl)dithiocarbamate), wherein the ratio of organo borate ester: bisdithiocarbamate is 1:6 to 15:1;

(iii) dithiocarbamates of the formula (III):

Application No. 10/678,408

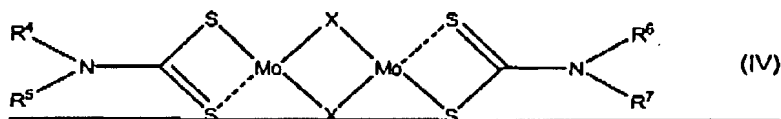


wherein  $R^9$  and  $R^{10}$  represent alkyl groups having 1 to 8 carbon atoms,  $M$  represents metals of the periodic groups IIA, IIIA, VA, VIA, IB, IIB, VIB, VIII and a salt moiety formed from an amine of the formula:



$R^{11}$ ,  $R^{12}$  and  $R^{13}$  being independently selected from hydrogen and aliphatic groups having 1 to 18 carbon atoms and  $n$  is the valence of  $M$ ;

or the formula (IV):



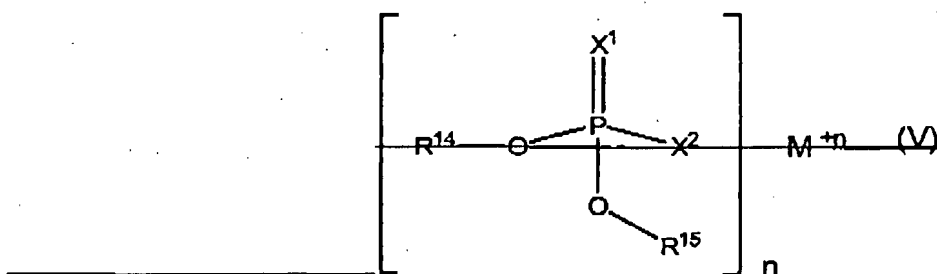
$X = S \text{ or } O$

where  $R^4$ ,  $R^5$ ,  $R^6$ , and  $R^7$  are aliphatic hydrocarbyl groups having 1 to 13 carbon atoms and  $R^8$  is an alkylene group having 1 to 8 carbon atoms; compound comprising molybdenum dialkyldithiocarbamate or zinc dialkyldithiocarbamate, wherein the ratio of organo borate ester: dithiocarbamate is 1:15 to 15:1

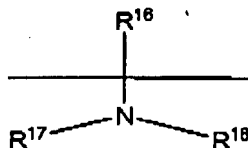
(iv) phosphorodithioates of the formula (V):



Application No. 10/678,408

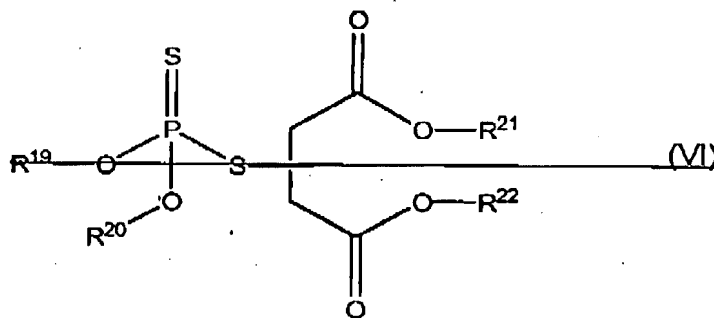


wherein  $X^1$  and  $X^2$  are independently selected from S and O,  $R^{14}$  and  $R^{15}$  represent hydrogen and alkyl groups having 1 to 22 carbon atoms, M represents metals of the periodic groups IIA, IIIA, VA, VIA, IB, IIB, VIB, VIII and a salt moiety formed from an amine of the formula:



$R^{16}$ ,  $R^{17}$  and  $R^{18}$  being independently selected from hydrogen and aliphatic groups having 1 to 18 carbon atoms and n is the valence of M, a phosphorodithioate compound comprising primary alkyl zincdithiophosphate, wherein the ratio of organo borate ester: phosphorodithioate is 1:15 to 15:1; and

(v) phosphorodithioate esters of the formula (VI):



Application No. 10/678,408

wherein  $R^{19}$ ,  $R^{20}$ ,  $R^{21}$ , and  $R^{22}$  may be the same or different and are selected from ~~alkyl groups having 1 to 8 carbon atoms~~; compound comprising dialkyl dithiophosphate, wherein the ratio of organo borate ester: phosphorodithioate ester is 1:15 to 15:1; and

(vi) a non-sulfur molybdenum additive prepared by reacting (a) about 1.0 mole of fatty oil having 12 or more carbon atoms, (b) about 1.0 to 2.5 moles diethanolamine and (c) a molybdenum source, wherein the ratio of organo borate ester: non sulfur molybdenum additive is 1:15 to 15:1.